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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,157	07/31/2003	Chan Won Park	2013P091	5452
8791	7590	09/28/2007	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN			WONG, XAVIER S	
1279 OAKMEAD PARKWAY			ART UNIT	PAPER NUMBER
SUNNYVALE, CA 94085-4040			2616	
MAIL DATE		DELIVERY MODE		
09/28/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/633,157	PARK ET AL.
	Examiner Xavier Szewai Wong	Art Unit 2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 29<sup>th</sup> June 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1 and 3-8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29<sup>th</sup> June 2007 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892) ✓
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

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### **DETAILED ACTION**

- Applicant's Amendment filed 29<sup>th</sup> July 2007 is acknowledged
- Claims 1, 6, 7 and 8 have been amended; Claim 2 has been cancelled
- Claims 1 and 3 – 8 are still pending in the present application
- This action is made FINAL

#### ***Drawings***

The drawings were received on 29<sup>th</sup> June 2007. These drawings are acknowledged and accepted by the examiner.

#### ***Specification***

The specification amendments were received on 29<sup>th</sup> June 2007. These specification amendments are acknowledged and accepted by the examiner.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 4 and 6 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaspar et al** (U.S Patent 6,961,344 B1) in view of **Bagchi et al** (U.S Pub 2002/0057713 A1).

Regarding claims 1 and 6, **Gaspar et al** clearly show and disclose a home phone line network and method that utilizes media access control (MAC) to perform Carrier Sense with collision detection – CSMA/CD (column 2 lines 22-27 & column 3 lines 15-34) – comprising: MBL and BL counters that are maintained/stored in register/memory within the MAC (column 4 lines 60-67; claim 10; fig. 3B). Active stations act as MBL/BL calculation units that increment or decrement back-off levels for the MBL/BL counters (column 4 lines 60-63, column 5 lines 5-34). However, **Gaspar et al** did not explicitly disclose the extraction of a current state, a data transmission priority, and a reference time signal to determine a final state of a frame. In the same field of endeavor, **Bagchi**

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**et al** disclose a back-off function that is dependent on the desired and current payload/frame to collect statistical data (therefore, extracting data in a current state) encoding rates (paragraph 0317). The stations transmit back-off signals to indicate ordering (priority involved) information that determines new back-off levels to be used by the MBL/BL counters and to be put into a *TX\_PRI*, which represents the priority slot number, as a final state before retransmission commences (paragraphs 0169-170). Carrier Sense 1100 detects the starting and ending times of a valid frame transmission on the wire as a purpose to determine when frames are present on the channel/transmission medium, as well as being used to determine the presence of a Back-off Signal in a Signal Slot (paragraph 0163; figs. 30-33). A gap with end-of-frame *EOF* (time) signal (as a *do\_FBOS* signal) that takes *CS\_IFG* microseconds prior to the next CS frame transmission begins (paragraphs 0164 & 0169; fig. 31). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the extraction of a current state, a data transmission priority, and a reference time signal to determine a final state of a frame as taught by **Bagchi et al**, in the apparatus and method of **Gaspar et al**, in order to ensure the transmission of all frames safely to the destinations.

**Bagchi et al** further disclose a gap with end-of-frame *EOF* (time) signal (as a *do\_FBOS* signal) which is located at the last 4 bytes of the transmission that takes *CS\_IFG* microseconds prior to the next CS frame transmission begins (paragraphs 0164 & 0169; fig. 31). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the a

signal is at the last section of the slot as taught by **Bagchi et al**, in the apparatus of **Gaspar et al**, in order to determine the time for a frame to reach the final state – into the MBL/BL registers.

Regarding claims 3 and 7, as applied to claims 1 and 6, **Gaspar et al** clearly show and disclose the claimed apparatus except the algorithm of handling normal and collision frames with MBL values: *the received frame is determined as a normal frame, if the MBL value MBL\_reg of a previous frame is 0, the MBL\_reg becomes 0, and if the MBL value MBL reg of the previous frame is not 0, the MBL value MBL\_reg is obtained by subtracting 1 from the MBL value MBL\_reg of the previous frame, after it is determined that the priority RxPRI and the MBL value MBL\_reg of the previous frame are the same, and when the received frame is determined as a collision frame, if the MBL value MBL\_reg of the previous frame is 0, the MBL value MBL\_reg is obtained by adding the MBL value MBL\_reg of the previous frame to the number of back-off signals of the received frame, and if the MBL value MBL\_reg of the previous frame is not 0, the MBL value MBL\_reg is obtained by subtracting 1 from the value which is obtained by adding the MBL value MBL\_reg of the previous frame to the number of back-off signals.*

In the same field of endeavor, **Bagchi et al** disclose an algorithm that teaches:

When the priority slots have no contenders/collision and previous MBL value is 0, then MBL value should be set to 0 { $\text{MBL}[\text{currentPriority}] := 0$ };  
else if there are no collision and the MBL value of previous frame is not 0, then MBL is set to *previous MBL value minus 1* { $\text{MBL}[\text{currentPriority}] = \text{saturate}(0, n\text{Levels}-1, \text{MBL}[\text{currentPriority}]-1)$  in which psignals is the previous MBL value in this case} when priority and previous MBL value are the same {if ( $\text{txPriority} = \text{currentPriority}$ )}.

When there is a collision frame {if psignals > 0} and if previous MBL value is 0 {if MBL[currentPriority] = 0} then *MBL value is added to previous MBL value*  
{MBL[currentPriority] := psignals; in which 0 + psignals := psignals};  
else if there is a collision and previous MBL value is not 0, then MBL value is set to  
*previous MBL value plus number of back-off signals minus 1* {MBL[currentPriority] =  
saturate(0,nLevels-1,MBL[currentPriority]+psignals-1)}. (All citations located in program  
code table in between paragraphs 0171 & 0172 on pgs. 14 & 15)

Therefore, it would have been obvious to a person of ordinary skill in the art at  
the time of the invention was made to incorporate the teachings of the algorithm to  
adjust BL values as taught by **Bagchi et al**, in the apparatus of **Gaspar et al**, in order to  
reduce error caused by frame collisions.

Regarding claims 4 and 8, as applied to claims 1 and 6, **Gaspar et al** clearly  
show and disclose the claimed apparatus except the algorithm of handling normal and  
collision frames with BL values: *when the received frame is determined as a normal frame, if the BL  
value BL\_reg of a previous frame is 0, the BL value BL\_reg is set to 0, and if the BL value BL\_reg of the  
previous frame is not 0, the BL value BL\_reg is obtained by subtracting 1 from the BL value BL\_reg of the  
previous frame, after it is determined that a corresponding station is in a data transmission standby state  
and a priority RxPRI of the received frame is the same as a BL value BL\_reg of the previous frame; when  
the received frame is determined as a collision frame, if a pseudo random number generator (PRNG)  
value generated in a PRNG circuit of a media access control (MAC) in the station is 0, the BL value  
BL\_reg of the previous frame becomes the BL value BL\_reg; when the received frame is determined as a  
collision frame, if the PRNG value is not 0 and the BL value BL\_reg of the previous frame is 0, the BL  
value BL\_reg is obtained by adding the BL value BL\_reg of the previous frame to the number of back-off*

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*signals that are observed prior to a corresponding back-off slot; and when the received frame is determined as a collision frame, if the PRNG value is not 0 and the BL value BL\_reg of the previous frame is not 0, the BL value BL\_reg is obtained by subtracting 1 from the value which is obtained by adding the BL value BL\_reg of the previous frame to the number of back-off signals observed prior to the PRNG value.*

In the same field of endeavor, **Bagchi et al** disclose:

When there is no collision {if (not sawCollision)} and the priority slot passed with no contenders (previous frame is 0), then BL value should be set to zero  
{BL[currentPriority] := 0};

else if there are previous frames transmitted successfully (previous BL frame is not 0), then BL should be set as *BL value of previous frame minus 1* {BL[currentPriority] := saturate(0,nLevels-1,BL[currentPriority]- 1)} while waiting for the Inter-frame gap period(IFG)/standby state to end and priority is the same as the previous frame {if (txPriority = currentPriority)}.

When there is a collision {if sawCollision}, a random signal slot generator will yield a back-off signal slot {signalSlot = integerRandom(nSignals)}; and if signalSlot (or considered as psignals in this case) generated is 0 {psignals := 0}, and previous BL value is 0, then BL value is set to BL value of previous frame {if backoffLevel = 0 then ... BL[currentPriority] := saturate(0, nLevels-1, tem), where tem is the signalSlot number generated};

else if signalSlot generated by random signal slot generator is not 0 {if psignals > 0} and previous BL value is not 0 {if backoffLevel > 0}, then BL value is set to *previous BL value plus number of back-off signals and then minus 1* prior to observing the

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random generator's value {BL[currentPriority] := saturate(0,nLevel-1,backoffLevel+psignals-1)}. (All citations located in program code table in between paragraphs 0171 & 0172 on pgs. 14 & 15)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the algorithm to adjust MBL values as taught by **Bagchi et al**, in the apparatus of **Gasper et al**, in order to reduce error caused by frame collisions.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gasper et al** (U.S Patent 6,961,344 B1) in view of **Bagchi et al** (U.S Pub 2002/0057713 A1), **Pasternak et al** (U.S Patent 6,760,305 B1) and the applicant's admitted prior art.

Regarding claim 5, **Gasper et al**, as modified by **Bagchi et al**, clearly show the claimed invention but did not explicitly disclose the slots can accommodate more than 5 bits to provide collision resolution to a maximum of 25 stations.

In the same field of endeavor, **Pasternak et al** disclose a 6-bit (more than 5 bits) representation of collision indication for each minislot (time slot) in upstream-downstream structures of a base station (col. 10 lines 17-20; figs. 5 & 11).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of having more than 5 bits to provide collision resolution as taught by **Pasternak et al**, in the apparatus of **Gasper et al** as modified by **Bagchi et al**, in order to achieve a balanced bandwidth transmission.

However, **Pasternak et al**, in view of **Gasper et al** and **Bagchi et al**, did not explicitly disclose the design supports a maximum of 25 stations.

Herein, the **applicants** clearly disclose the HomePNA network can connect a maximum of 25 stations (pg. 2 lines 17-23).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the design supporting a maximum of 25 stations as taught by the **applicants**, in the apparatus of **Gasper et al** as modified by **Bagchi et al** and **Pasternak et al**; because it is well-known in the art on the subject of HomePNA.

#### ***Response to Arguments***

Applicant's arguments filed 29<sup>th</sup> July 2007 have been fully considered but they are not persuasive.

To further clarify *amended claim 1*, **Bagchi et al** clearly disclose the EOF sequence leads to a cease (final state) in transmission after collision detection as described in paragraph 0169 lines 14-17 and figure 31 (EOF 1150 at the last section) which reads on a last section of a back-off slot section. Additionally, **Bagchi et al** clearly disclose in paragraph 0164 lines 24-27 a gap between the last symbol of the EOF and the first symbol of the next transmission; the examiner reads on the gap between the EOF and the next transmission as a final state of the frame/signal.

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As for claims 3 – 8, the applicants basically argued that since claims are dependent on claim 1 and 6 and are, therefore, patentable. Therefore, the examiner respectfully maintains the original rejections.

In view of the above reasons and having addressed Applicant's argument, the previous rejection is maintained and made Final by the Examiner.

### ***Conclusion***

This action is made Final. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is (571) 270-1780. The examiner can normally be reached on Monday through Friday 8 am - 5 pm (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

Xavier Szewai Wong  
X.S.W / x.s.w  
3<sup>rd</sup> September 2007

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